



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/862,720

05/23/2001

David Di Huo

2925-0497P

1180

30594

7590

07/22/2005

HARNESSE, DICKEY & PIERCE, P.L.C.  
P.O. BOX 8910  
RESTON, VA 20195

EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/862,720

Applicant(s)

HUO, DAVID DI

Examiner

Freshteh N. Aghdam

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 05/06/2005 have been fully considered but they are not persuasive.

**Applicant's Argument:** In pages 5 and 6, applicant argues, the claimed invention is not suggested or taught by Andersson, "a frequency hopping generator, the frequency hopping generator providing a frequency sequence having a short term deterministic structure, wherein the deterministic structure of the frequency sequence is in the matrix form, where each row of the matrix is a vector, and all components of each vector are generated simultaneously" and points out col. 10, lines 28-32 of the specification disclosed by Andersson to support his argument.

**Examiner Response:** As it is evidenced, Andersson teaches another embodiment of the invention see col. 10, lines 28-32, wherein Andersson recites "A further possibility resides in the use of a random number generating device 221...". Therefore, Andersson teaches the claimed invention see col. 9, lines 6-48. This is an alternative to the non-random hop sequence generator in col. 9. This alternative approach is not relied upon in the rejection. A new rejection has been made to claims 9 and 10, which is necessitated by applicant's amendment to the claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson (US 5,937,002).

As to claim 1, Andersson et al teach a frequency-hopping generator to generate the frequency hop sequences within a time interval wherein the frequency sequence is in matrix form (Col. 9, Lines 6-48). The cited table (Col. 9, Lines 35-45) could be represented as follow:

USERS (0-6)							$\Delta t$
f4	f5	f6	f1	f2	f3	f0	0
f5	f6	f2	f3	f4	f0	f1	1
f6	f3	f4	f5	f0	f1	f2	2

One of ordinary skill in the art would clearly recognize that the elements of the matrix can be represented in vector form, which is a form of mathematical representation, and since the pseudo random coding is used then the frequencies are generated simultaneously. Therefore, it would have been obvious to one of ordinary skill

Art Unit: 2631

in the art to use the teaching of Andersson et al in order to use the best channels with respect to interference (Abstract).

As to claim 2, Andersson et al teach a frequency sequence in matrix form that the number of rows are greater than the number of columns (Col. 9, Lines 6-48).

As to claims 3 and 4, Andersson et al disclose that the number of periods and channels (i.e. frequencies) are design choices (Col. 9, Lines 25 and 26; Col. 10, Lines 5-12).

As to claim 5, Andersson et al teach a method of generating frequency hop sequences in a matrix form in which the matrix includes unique frequencies see table drawn above.

As to claim 6, Andersson et al teach a method of generating a frequency sequence comprising determining the number of hop frequencies ( $C_j$ , where  $j=j_m-j_l-j_h$ ), determining a specific sequence period and repetition distance ( $\Delta t = 3$ ), generating several frequency sequences, and generating a matrix including the several frequency sequences see the above table.

As to claim 7, Andersson et al disclose that the number of periods and channels (i.e. frequencies) are design choices (Col. 9, Lines 25 and 26; Col. 10, Lines 5-12).

As to claim 8, Andersson et al disclose that the method of generating frequency hop sequences is to ensure that not more than one base station will use the same channel at any time (Col. 9, Lines 3-5; Col. 10, Lines 1-3).

As to claim 9, Andersson teaches a method of generating frequency sequences in a communications system for use in frequency hopping comprising obtaining a

Art Unit: 2631

repetition distance value being greater than zero and less than a predetermined number of frequencies (Col. 9, delta t); generating mutual orthogonal sequences simultaneously in vector form based on the repetition distant (delta t) see (Col. 9, Lines 1-47 and 63-67; Col. 10, Lines 1-5). One of ordinary skill in the art would clearly recognize that the elements of the matrix can be represented in vector form, which is a form of mathematical representation, and since the pseudo random coding is used then the frequencies are generated simultaneously. Therefore, it would have been obvious to one of ordinary skill in the art to use the teaching of Andersson et al in order to use the best channels with respect to interference (Abstract).

As to claim 10, Andersson teaches selecting initial values used in conjunction with generating mutual orthogonal sequences (Col. 9, Lines 35-44; Col. 10, Lines 1-5). One of ordinary skill in the art would clearly recognize that it is obvious that the first frequency value for each user could be considered as an initial value see the reconstructed table in claim 1.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2631

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

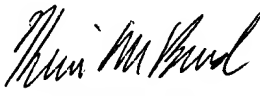
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 2631

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam  
July 21, 2005

  
**KEVIN BURD**  
**PRIMARY EXAMINER**